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SEQUENZPROTOKOLL

<110> Jomaa, Hassan

<120> Verfahren zur Identifizierung chemischer Wirkstoffe und
Wirkstoffe zur Hemmung des
1-Desoxy-D-xylulose-5-Phosphat-Biosynthesewegs

<130> 15514

<140> PCT/EP99/02463

<141> 1999-04-13

<150> DE19843279.8

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<150> DE19828097.1

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<151> 1998-06-09

<150> DE19831637.2

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<150> DE19831639.9

<151> 1998-07-15

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<170> PatentIn Ver. 2.1

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Asn Asp Leu Val Ile Asn Asn Thr Ser Lys Cys Val Ser Ile Glu Arg
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aga aaa aat aac gca tat ata aat tat ggt ata gga tat aat gga cca 144
Arg Lys Asn Asn Ala Tyr Ile Asn Tyr Gly Ile Gly Tyr Asn Gly Pro
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gat aat aaa ata aca aag agt aga aga tgt aaa aga ata aag tta tgc 192
Asp Asn Lys Ile Thr Lys Ser Arg Arg Cys Lys Arg Ile Lys Leu Cys
50 55 60

aaa aag gat tta ata gat att ggt gca ata aag aaa cca att aat gta 240
Lys Lys Asp Leu Ile Asp Ile Gly Ala Ile Lys Lys Pro Ile Asn Val
65 70 75 80

gca att ttt gga agt act ggt agt ata ggt acg aat gct tta aat ata 288
Ala Ile Phe Gly Ser Thr Gly Ser Ile Gly Thr Asn Ala Leu Asn Ile
85 90 95

ata agg gag tgt aat aaa att gaa aat gtt ttt aat gtt aaa gca ttg 336
Ile Arg Glu Cys Asn Lys Ile Glu Asn Val Phe Asn Val Lys Ala Leu
100 105 110

tat gtg aat aag agt gtg aat gaa tta tat gaa caa gct aga gaa ttt 384
Tyr Val Asn Lys Ser Val Asn Glu Leu Tyr Glu Gln Ala Arg Glu Phe
115 120 125

tta cca gaa tat ttg tgt ata cat gat aaa agt gta tat gaa gaa tta 432
Leu Pro Glu Tyr Leu Cys Ile His Asp Lys Ser Val Tyr Glu Glu Leu
130 135 140

aaa gaa ctg gta aaa aat ata aaa gat tat aaa cct ata ata ttg tgt 480
Lys Glu Leu Val Lys Asn Ile Lys Asp Tyr Lys Pro Ile Ile Leu Cys
145 150 155 160

ggt gat gaa ggg atg aaa gaa ata tgt agt agt aat agt ata gat aaa	528
Gly Asp Glu Gly Met Lys Glu Ile Cys Ser Ser Asn Ser Ile Asp Lys	
165 170 175	
ata gtt att ggt att gat tct ttt caa gga tta tat tct act atg tat	576
Ile Val Ile Gly Ile Asp Ser Phe Gln Gly Leu Tyr Ser Thr Met Tyr	
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gca att atg aat aat aaa ata gtt gcg tta gct aat aaa gaa tcc att	624
Ala Ile Met Asn Asn Lys Ile Val Ala Leu Ala Asn Lys Glu Ser Ile	
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gtc tct gct ggt ttc ttt tta aag aaa tta tta aat att cat aaa aat	672
Val Ser Ala Gly Phe Phe Leu Lys Lys Leu Leu Asn Ile His Lys Asn	
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Leu Asp Asn Asn Lys Val Leu Lys Thr Lys Cys Leu Gln Asp Asn Phe	
245 250 255	
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Ser Lys Ile Asn Asn Ile Asn Lys Ile Phe Leu Cys Ser Ser Gly Gly	
260 265 270	
cca ttt caa aat tta act atg gac gaa tta aaa aat gta aca tca gaa	864
Pro Phe Gln Asn Leu Thr Met Asp Glu Leu Lys Asn Val Thr Ser Glu	
275 280 285	
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Asn Ala Leu Lys His Pro Lys Trp Lys Met Gly Lys Lys Ile Thr Ile	
290 295 300	
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Asp Ser Ala Thr Met Met Asn Lys Gly Leu Glu Val Ile Glu Thr His	
305 310 315 320	
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Phe Leu Phe Asp Val Asp Tyr Asn Asp Ile Glu Val Ile Val His Lys	
325 330 335	
gaa tgc att ata cat tct tgt gtt gaa ttt ata gac aaa tca gta ata	1056
Glu Cys Ile Ile His Ser Cys Val Glu Phe Ile Asp Lys Ser Val Ile	
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agc caa atg tat tat cca gat atg caa ata ccc ata tta tat tct tta 1104
 Ser Gln Met Tyr Tyr Pro Asp Met Gln Ile Pro Ile Leu Tyr Ser Leu
 355 360 365

aca tgg cct gat aga ata aaa aca aat tta aaa cct tta gat ttg gct 1152
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 370 375 380

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 385 390 395 400

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 Cys Ile Lys Leu Ala Tyr Gln Ala Gly Ile Lys Gly Asn Phe Tyr Pro
 405 410 415

act gta cta aat gcg tca aat gaa ata gct aac aac tta ttt ttg aat 1296
 Thr Val Leu Asn Ala Ser Asn Glu Ile Ala Asn Asn Leu Phe Leu Asn
 420 425 430

aat aaa att aaa tat ttt gat att tcc tct ata ata tcg caa gtt ctt 1344
 Asn Lys Ile Lys Tyr Phe Asp Ile Ser Ser Ile Ile Ser Gln Val Leu
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gaa tct ttc aat tct caa aag gtt tcg gaa aat agt gaa gat tta atg 1392
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aag caa att cta caa ata cat tct tgg gcc aaa gat aaa gct acc gat 1440
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Lys	Lys	Asp	Leu	Ile	Asp	Ile	Gly	Ala	Ile	Lys	Lys	Pro	Ile	Asn	Val	65	70	75	80
Ala	Ile	Phe	Gly	Ser	Thr	Gly	Ser	Ile	Gly	Thr	Asn	Ala	Leu	Asn	Ile	85	90	95	
Ile	Arg	Glu	Cys	Asn	Lys	Ile	Glu	Asn	Val	Phe	Asn	Val	Lys	Ala	Leu	100	105	110	
Tyr	Val	Asn	Lys	Ser	Val	Asn	Glu	Leu	Tyr	Glu	Gln	Ala	Arg	Glu	Phe	115	120	125	
Leu	Pro	Glu	Tyr	Leu	Cys	Ile	His	Asp	Lys	Ser	Val	Tyr	Glu	Glu	Leu	130	135	140	
Lys	Glu	Leu	Val	Lys	Asn	Ile	Lys	Asp	Tyr	Lys	Pro	Ile	Ile	Leu	Cys	145	150	155	160
Gly	Asp	Glu	Gly	Met	Lys	Glu	Ile	Cys	Ser	Ser	Asn	Ser	Ile	Asp	Lys	165	170	175	
Ile	Val	Ile	Gly	Ile	Asp	Ser	Phe	Gln	Gly	Leu	Tyr	Ser	Thr	Met	Tyr	180	185	190	
Ala	Ile	Met	Asn	Asn	Lys	Ile	Val	Ala	Leu	Ala	Asn	Lys	Glu	Ser	Ile	195	200	205	
Val	Ser	Ala	Gly	Phe	Phe	Leu	Lys	Lys	Leu	Leu	Asn	Ile	His	Lys	Asn	210	215	220	
Ala	Lys	Ile	Ile	Pro	Val	Asp	Ser	Glu	His	Ser	Ala	Ile	Phe	Gln	Cys	225	230	235	240
Leu	Asp	Asn	Asn	Lys	Val	Leu	Lys	Thr	Lys	Cys	Leu	Gln	Asp	Asn	Phe	245	250	255	
Ser	Lys	Ile	Asn	Asn	Ile	Asn	Lys	Ile	Phe	Leu	Cys	Ser	Ser	Gly	Gly	260	265	270	
Pro	Phe	Gln	Asn	Leu	Thr	Met	Asp	Glu	Leu	Lys	Asn	Val	Thr	Ser	Glu	275	280	285	

Asn Ala Leu Lys His Pro Lys Trp Lys Met Gly Lys Lys Ile Thr Ile
 290 295 300

Asp Ser Ala Thr Met Met Asn Lys Gly Leu Glu Val Ile Glu Thr His
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Phe Leu Phe Asp Val Asp Tyr Asn Asp Ile Glu Val Ile Val His Lys
 325 330 335

Glu Cys Ile Ile His Ser Cys Val Glu Phe Ile Asp Lys Ser Val Ile
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 370 375 380

Gln Val Ser Thr Leu Thr Phe His Lys Pro Ser Leu Glu His Phe Pro
 385 390 395 400

Cys Ile Lys Leu Ala Tyr Gln Ala Gly Ile Lys Gly Asn Phe Tyr Pro
 405 410 415

Thr Val Leu Asn Ala Ser Asn Glu Ile Ala Asn Asn Leu Phe Leu Asn
 420 425 430

Asn Lys Ile Lys Tyr Phe Asp Ile Ser Ser Ile Ile Ser Gln Val Leu
 435 440 445

Glu Ser Phe Asn Ser Gln Lys Val Ser Glu Asn Ser Glu Asp Leu Met
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tatca atg att ttt aat tat gtg ttt ttt aag aac ttt gta cca gtt gtt 170

Met Ile Phe Asn Tyr Val Phe Phe Lys Asn Phe Val Pro Val Val

1 5 10 15

cta tac att ctc ctt ata ata tat att aac tta aat ggc atg aat aat 218

Leu Tyr Ile Leu Leu Ile Ile Tyr Ile Asn Leu Asn Gly Met Asn Asn

20 25 30

aaa aat caa ata aaa aca gaa aaa att tat ata aag aaa ttg aat agg 266

Lys Asn Gln Ile Lys Thr Glu Lys Ile Tyr Ile Lys Lys Leu Asn Arg

35 40 45

ttg tca agg aaa aat tcg tta tgt agt tct aaa aat aaa ata gca tgc 314

Leu Ser Arg Lys Lys Asn Ser Leu Cys Ser Ser Lys Asn Lys Ile Ala Cys

50 55 60

ttg ttc gat ata gga aat gat gat aat aga aat acg aca tat ggc tat 362

Leu Phe Asp Ile Gly Asn Asp Asp Asn Arg Asn Thr Thr Tyr Gly Tyr

65 70 75

aat gtg aat gtt aaa aat gat gat att aat tcc tta cta aaa aat aat 410

Asn Val Asn Val Lys Asn Asp Asp Ile Asn Ser Leu Leu Lys Asn Asn

80 85 90 95

tat agt aat aaa ttg tac atg gat aag agg aaa aat att aat aat gta 458

Tyr Ser Asn Lys Leu Tyr Met Asp Lys Arg Lys Asn Ile Asn Asn Val

100 105 110

att agt act aat aaa ata tct ggg tcc att tca aat att tgt agt aga 506

Ile Ser Thr Asn Lys Ile Ser Gly Ser Ile Ser Asn Ile Cys Ser Arg

115 120 125

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Asn Gln Lys Glu Asn Glu Gln Lys Arg Asn Lys Gln Arg Cys Leu Thr	
130 135 140	
caa tgt cac act tat aat atg tca cat gaa cag gac aaa cta gct aat	602
Gln Cys His Thr Tyr Asn Met Ser His Glu Gln Asp Lys Leu Ala Asn	
145 150 155	
gat aat aat agg aat aat aaa aag aat ttt aat tta tta ttt ata aat	650
Asp Asn Asn Arg Asn Asn Lys Lys Asn Phe Asn Leu Leu Phe Ile Asn	
160 165 170 175	
tat ttt aat ttg aaa cga atg aaa aat tct ctt cta aat aaa gac aat	698
Tyr Phe Asn Leu Lys Arg Met Lys Asn Ser Leu Leu Asn Lys Asp Asn	
180 185 190	
ttc ttt tac tgt aaa gaa aaa aaa ttg tca ttt ctg cat aag gcc tat	746
Phe Phe Tyr Cys Lys Glu Lys Lys Leu Ser Phe Leu His Lys Ala Tyr	
195 200 205	
aaa aaa aaa aat tgc act ttt caa aat tat agt tta aaa aga aaa tct	794
Lys Lys Lys Asn Cys Thr Phe Gln Asn Tyr Ser Leu Lys Arg Lys Ser	
210 215 220	
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Asn Arg Asp Ser His Lys Leu Phe Ser Gly Glu Phe Asp Asp Tyr Thr	
225 230 235	
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240 245 250 255	
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260 265 270	
aat gat aat aat gat tat aat aat aat aat agt tgt aat aat tta gga	986
Asn Asp Asn Asn Asp Tyr Asn Asn Asn Asn Ser Cys Asn Asn Leu Gly	
275 280 285	
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Glu Arg Ser Asn His Tyr Asp Asn Tyr Gly Gly Asp Asn Asn Asn Pro	
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Glu Tyr Tyr Glu Arg Lys Tyr Phe Ser Glu Asp Ile Lys Lys Ser Val	
355 360 365	
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370 375 380	
aaa gaa gaa ttt ata aat aat gga gtt tat att aat aat ata gat aat	1322
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385 390 395	
aca tat tat aaa aaa gaa aat att tta ata atg aaa aag ata tta cat	1370
Thr Tyr Tyr Lys Lys Glu Asn Ile Leu Ile Met Lys Lys Ile Leu His	
400 405 410 415	
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Tyr Phe Pro Leu Leu Lys Leu Ile Asn Asn Pro Ser Asp Leu Lys Lys	
420 425 430	
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Leu Lys Lys Gln Tyr Leu Pro Leu Leu Ala His Glu Leu Lys Ile Phe	
435 440 445	
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Ser Ser Leu Glu Ile Gln Leu Leu Leu Leu Tyr Ile Phe Asn Gln Pro	
465 470 475	
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Tyr Asp Asn Val Ile Tyr Asp Ile Gly His Gln Ala Tyr Val His Lys	
480 485 490 495	
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515 520 525	
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Glu Ala Glu Trp Gln Val Lys Asn Lys Glu Lys Tyr Gly Asn Gly Asp	
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560 565 570 575	
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Gln Lys Gly Ile His Asn Asp Asn Asn Ile Asn Asn Asn Ile Asn Asn	
580 585 590	
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Asn Asn Tyr Ile Asn Pro Ser Asp Val Val Gly Arg Glu Asn Thr Asn	
595 600 605	
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Val Pro Asn Val Arg Asn Asp Asn His Asn Val Asp Lys Val His Ile	
610 615 620	
gct att ata gga gat ggt ggt tta aca ggt gga atg gca tta gaa gcg	2042
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Leu Asn Tyr Ile Ser Phe Leu Asn Ser Lys Ile Leu Ile Ile Tyr Asn	
640 645 650 655	
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Asp Asn Gly Gln Val Ser Leu Pro Thr Asn Ala Val Ser Ile Ser Gly	
660 665 670	
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785 790 795	
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Ser Thr Lys Tyr Asp Val Asn Asn Lys Asn Asn Lys Asn Asn Asp Asn	
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Ser Glu Ile Ile Lys Tyr Glu Asp Met Phe Ser Lys Glu Thr Phe Thr	
820 825 830	
gat ata tat aca aat gaa atg tta aaa tat tta aag aaa gat aga aat	2666
Asp Ile Tyr Thr Asn Glu Met Leu Lys Tyr Leu Lys Lys Asp Arg Asn	
835 840 845	
ata ata ttc cta tct ccc gct atg tta gga gga tca gga ttg gtt aaa	2714
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Gln Ile Ile His Asp Leu Asn Leu Gln Asn Ile Pro Leu Lys Val Ile	
915 920 925	
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Ile Gly Arg Ser Gly Leu Val Gly Glu Asp Gly Ala Thr His Gln Gly	
930 935 940	
ata tat gat tta tct tat ctt ggg aca ctt aac aat gca tat ata ata	3002
Ile Tyr Asp Leu Ser Tyr Leu Gly Thr Leu Asn Asn Ala Tyr Ile Ile	
945 950 955	
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Ser Pro Ser Asn Gln Val Asp Leu Lys Arg Ala Leu Arg Phe Ala Tyr	
960 965 970 975	
tta gat aag gac cat tct gtg tat ata cgt ata ccc aga atg aac ata	3098
Leu Asp Lys Asp His Ser Val Tyr Ile Arg Ile Pro Arg Met Asn Ile	
980 985 990	
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Leu Ser Asp Lys Tyr Met Lys Gly Tyr Leu Asn Ile His Met Lys Asn	
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Glu Ser Lys Asn Ile Asp Val Asn Val Asp Ile Asn Asp Asp Val Asp	
1010 1015 1020	
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Lys Tyr Ser Glu Glu Tyr Met Asp Asp Asp Asn Phe Ile Lys Ser Phe	
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Ile Gly Lys Ser Arg Ile Ile Lys Met Asp Asn Glu Asn Asn Asn Thr	
1040 1045 1050 1055	
aat gaa cat tat tca agc aga gga gat aca cag aca aaa aaa aaa aaa	3338
Asn Glu His Tyr Ser Ser Arg Gly Asp Thr Gln Thr Lys Lys Lys Lys	
1060 1065 1070	
gtt tgt atc ttt aac atg ggt agt atg ctt ttt aat gta att aat gct	3386
Val Cys Ile Phe Asn Met Gly Ser Met Leu Phe Asn Val Ile Asn Ala	
1075 1080 1085	

ata aaa gaa att gaa aaa gaa caa tat att tca cat aat tat tct ttt 3434
 Ile Lys Glu Ile Glu Lys Glu Gln Tyr Ile Ser His Asn Tyr Ser Phe
 1090 1095 1100

tca att gtt gat atg ata ttt tta aat cct tta gat aaa aat atg ata 3482
 Ser Ile Val Asp Met Ile Phe Leu Asn Pro Leu Asp Lys Asn Met Ile
 1105 1110 1115

gat cat gta ata aaa caa aat aaa cat caa tat tta att act tat gaa 3530
 Asp His Val Ile Lys Gln Asn Lys His Gln Tyr Leu Ile Thr Tyr Glu
 1120 1125 1130 1135

gat aat act ata ggt ggt ttt tct aca cat ttc aat aat tat tta ata 3578
 Asp Asn Thr Ile Gly Gly Phe Ser Thr His Phe Asn Asn Tyr Leu Ile
 1140 1145 1150

gaa aat aat tat att aca aaa cat aac tta tat gtt cat aat att tat 3626
 Glu Asn Asn Tyr Ile Thr Lys His Asn Leu Tyr Val His Asn Ile Tyr
 1155 1160 1165

tta tct aat gag cca att gaa cat gca tct ttt aag gat caa caa gaa 3674
 Leu Ser Asn Glu Pro Ile Glu His Ala Ser Phe Lys Asp Gln Gln Glu
 1170 1175 1180

gtc gtc aaa atg gat aaa tgt agt ctt gtc aat aga att aaa aat tat 3722
 Val Val Lys Met Asp Lys Cys Ser Leu Val Asn Arg Ile Lys Asn Tyr
 1185 1190 1195

ctt aaa aat aat cct aca tgatgtaaga taaatatata tttctaaaat 3770
 Leu Lys Asn Asn Pro Thr
 1200 1205

tatctttttt ttatacttta atgtgtacaa taaaatatat atctaaatat attttatttg 3830

tacgcttttt tttttttttt ttttaattggt atttttgtat at 3872

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<211> 1205

<212> FRT

<213> Plasmodium falciparum

<400> 4

Met Ile Phe Asn Tyr Val Phe Phe Lys Asn Phe Val Pro Val Val Leu
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Tyr Ile Leu Leu Ile Ile Tyr Ile Asn Leu Asn Gly Met Asn Asn Lys
 20 25 30

Asn Gln Ile Lys Thr Glu Lys Ile Tyr Ile Lys Lys Leu Asn Arg Leu
 35 40 45
 Ser Arg Lys Asn Ser Leu Cys Ser Ser Lys Asn Lys Ile Ala Cys Leu
 50 55 60
 Phe Asp Ile Gly Asn Asp Asp Asn Arg Asn Thr Thr Tyr Gly Tyr Asn
 65 70 75 80
 Val Asn Val Lys Asn Asp Asp Ile Asn Ser Leu Leu Lys Asn Asn Tyr
 85 90 95
 Ser Asn Lys Leu Tyr Met Asp Lys Arg Lys Asn Ile Asn Asn Val Ile
 100 105 110
 Ser Thr Asn Lys Ile Ser Gly Ser Ile Ser Asn Ile Cys Ser Arg Asn
 115 120 125
 Gln Lys Glu Asn Glu Gln Lys Arg Asn Lys Gln Arg Cys Leu Thr Gln
 130 135 140
 Cys His Thr Tyr Asn Met Ser His Glu Gln Asp Lys Leu Ala Asn Asp
 145 150 155 160
 Asn Asn Arg Asn Asn Lys Lys Asn Phe Asn Leu Leu Phe Ile Asn Tyr
 165 170 175
 Phe Asn Leu Lys Arg Met Lys Asn Ser Leu Leu Asn Lys Asp Asn Phe
 180 185 190
 Phe Tyr Cys Lys Glu Lys Lys Leu Ser Phe Leu His Lys Ala Tyr Lys
 195 200 205
 Lys Lys Asn Cys Thr Phe Gln Asn Tyr Ser Leu Lys Arg Lys Ser Asn
 210 215 220
 Arg Asp Ser His Lys Leu Phe Ser Gly Glu Phe Asp Asp Tyr Thr Asn
 225 230 235 240
 Asn Asn Ala Leu Tyr Glu Ser Glu Lys Lys Glu Tyr Ile Thr Leu Asn
 245 250 255
 Asn Asn Asn Lys Asn Asn Asn Asn Lys Asn Asn Asp Asn Lys Asn Asn
 260 265 270
 Asp Asn Asn Asp Tyr Asn Asn Asn Asn Ser Cys Asn Asn Leu Gly Glu
 275 280 285

Arg Ser Asn His Tyr Asp Asn Tyr Gly Gly Asp Asn Asn Asn Pro Cys
 290 295 300

Asn Asn Asn Asn Asp Lys Tyr Asp Ile Gly Lys Tyr Phe Lys Gln Ile
 305 310 315 320

Asn Thr Phe Ile Asn Ile Asp Glu Tyr Lys Thr Ile Tyr Gly Asp Glu
 325 330 335

Ile Tyr Lys Glu Ile Tyr Glu Leu Tyr Val Glu Arg Asn Ile Pro Glu
 340 345 350

Tyr Tyr Glu Arg Lys Tyr Phe Ser Glu Asp Ile Lys Lys Ser Val Leu
 355 360 365

Phe Asp Ile Asp Lys Tyr Asn Asp Val Glu Phe Glu Lys Ala Ile Lys
 370 375 380

Glu Glu Phe Ile Asn Asn Gly Val Tyr Ile Asn Asn Ile Asp Asn Thr
 385 390 395 400

Tyr Tyr Lys Lys Glu Asn Ile Leu Ile Met Lys Lys Ile Leu His Tyr
 405 410 415

Phe Pro Leu Leu Lys Leu Ile Asn Asn Pro Ser Asp Leu Lys Lys Leu
 420 425 430

Lys Lys Gln Tyr Leu Pro Leu Leu Ala His Glu Leu Lys Ile Phe Leu
 435 440 445

Phe Phe Ile Val Asn Ile Thr Gly Gly His Phe Ser Ser Val Leu Ser
 450 455 460

Ser Leu Glu Ile Gln Leu Leu Leu Tyr Ile Phe Asn Gln Pro Tyr
 465 470 475 480

Asp Asn Val Ile Tyr Asp Ile Gly His Gln Ala Tyr Val His Lys Ile
 485 490 495

Leu Thr Gly Arg Lys Leu Leu Phe Leu Ser Leu Arg Asn Lys Lys Gly
 500 505 510

Ile Ser Gly Phe Leu Asn Ile Phe Glu Ser Ile Tyr Asp Lys Phe Gly
 515 520 525

Ala Gly His Ser Ser Thr Ser Leu Ser Ala Ile Gln Gly Tyr Tyr Glu
 530 535 540

Ala Glu Trp Gln Val Lys Asn Lys Glu Lys Tyr Gly Asn Gly Asp Ile			
545	550	555	560
Glu Ile Ser Asp Asn Ala Asn Val Thr Asn Asn Glu Arg Ile Phe Gln			
	565	570	575
Lys Gly Ile His Asn Asp Asn Asn Ile Asn Asn Asn Ile Asn Asn Asn			
	580	585	590
Asn Tyr Ile Asn Pro Ser Asp Val Val Gly Arg Glu Asn Thr Asn Val			
	595	600	605
Pro Asn Val Arg Asn Asp Asn His Asn Val Asp Lys Val His Ile Ala			
	610	615	620
Ile Ile Gly Asp Gly Gly Leu Thr Gly Gly Met Ala Leu Glu Ala Leu			
625	630	635	640
Asn Tyr Ile Ser Phe Leu Asn Ser Lys Ile Leu Ile Ile Tyr Asn Asp			
	645	650	655
Asn Gly Gln Val Ser Leu Pro Thr Asn Ala Val Ser Ile Ser Gly Asn			
	660	665	670
Arg Pro Ile Gly Ser Ile Ser Asp His Leu His Tyr Phe Val Ser Asn			
	675	680	685
Ile Glu Ala Asn Ala Gly Asp Asn Lys Leu Ser Lys Asn Ala Lys Glu			
690	695	700	
Asn Asn Ile Phe Glu Asn Leu Asn Tyr Asp Tyr Ile Gly Val Val Asn			
705	710	715	720
Gly Asn Asn Thr Glu Glu Leu Phe Lys Val Leu Asn Asn Ile Lys Glu			
	725	730	735
Asn Lys Leu Lys Arg Ala Thr Val Leu His Val Arg Thr Lys Lys Ser			
	740	745	750
Asn Asp Phe Ile Asn Ser Lys Ser Pro Ile Ser Ile Leu His Ser Ile			
	755	760	765
Lys Lys Asn Glu Ile Phe Pro Phe Asp Thr Thr Ile Leu Asn Gly Asn			
	770	775	780
Ile His Lys Glu Asn Lys Ile Glu Glu Glu Lys Asn Val Ser Ser Ser			
785	790	795	800

Thr Lys Tyr Asp Val Asn Asn Lys Asn Asn Lys Asn Asn Asp Asn Ser
 805 810 815

Glu Ile Ile Lys Tyr Glu Asp Met Phe Ser Lys Glu Thr Phe Thr Asp
 820 825 830

Ile Tyr Thr Asn Glu Met Leu Lys Tyr Leu Lys Lys Asp Arg Asn Ile
 835 840 845

Ile Phe Leu Ser Pro Ala Met Leu Gly Gly Ser Gly Leu Val Lys Ile
 850 855 860

Ser Glu Arg Tyr Pro Asn Asn Val Tyr Asp Val Gly Ile Ala Glu Gln
 865 870 875 880

His Ser Val Thr Phe Ala Ala Ala Met Ala Met Asn Lys Lys Leu Lys
 885 890 895

Ile Gln Leu Cys Ile Tyr Ser Thr Phe Leu Gln Arg Ala Tyr Asp Gln
 900 905 910

Ile Ile His Asp Leu Asn Leu Gln Asn Ile Pro Leu Lys Val Ile Ile
 915 920 925

Gly Arg Ser Gly Leu Val Gly Glu Asp Gly Ala Thr His Gln Gly Ile
 930 935 940

Tyr Asp Leu Ser Tyr Leu Gly Thr Leu Asn Asn Ala Tyr Ile Ile Ser
 945 950 955 960

Pro Ser Asn Gln Val Asp Leu Lys Arg Ala Leu Arg Phe Ala Tyr Leu
 965 970 975

Asp Lys Asp His Ser Val Tyr Ile Arg Ile Pro Arg Met Asn Ile Leu
 980 985 990

Ser Asp Lys Tyr Met Lys Gly Tyr Leu Asn Ile His Met Lys Asn Glu
 995 1000 1005

Ser Lys Asn Ile Asp Val Asn Val Asp Ile Asn Asp Asp Val Asp Lys
 1010 1015 1020

Tyr Ser Glu Glu Tyr Met Asp Asp Asp Asn Phe Ile Lys Ser Phe Ile
 1025 1030 1035 1040

Gly Lys Ser Arg Ile Ile Lys Met Asp Asn Glu Asn Asn Asn Thr Asn
 1045 1050 1055

Glu His Tyr Ser Ser Arg Gly Asp Thr Gln Thr Lys Lys Lys Lys Val
1060 1065 1070

Cys Ile Phe Asn Met Gly Ser Met Leu Phe Asn Val Ile Asn Ala Ile
1075 1080 1085

Lys Glu Ile Glu Lys Glu Gln Tyr Ile Ser His Asn Tyr Ser Phe Ser
1090 1095 1100

Ile Val Asp Met Ile Phe Leu Asn Pro Leu Asp Lys Asn Met Ile Asp
1105 1110 1115 1120

His Val Ile Lys Gln Asn Lys His Gln Tyr Leu Ile Thr Tyr Glu Asp
1125 1130 1135

Asn Thr Ile Gly Gly Phe Ser Thr His Phe Asn Asn Tyr Leu Ile Glu
1140 1145 1150

Asn Asn Tyr Ile Thr Lys His Asn Leu Tyr Val His Asn Ile Tyr Leu
1155 1160 1165

Ser Asn Glu Pro Ile Glu His Ala Ser Phe Lys Asp Gln Gln Glu Val
1170 1175 1180

Val Lys Met Asp Lys Cys Ser Leu Val Asn Arg Ile Lys Asn Tyr Leu
1185 1190 1195 1200

Lys Asn Asn Pro Thr
1205